

DEC 18 2009

PATENT APPLN. NO. 10/563,126
RESPONSE UNDER 37 C.F.R. §1.111

PATENT
NON-FINAL

IN THE CLAIMS:

1. (currently amended) A nonaqueous electrolyte secondary battery which has a positive electrode containing lithium cobalt oxide as a positive active material, a negative electrode containing a graphite material and a nonaqueous electrolyte solution containing ethylene carbonate as a solvent and which is charged with an end-of-charge voltage of at least 4.3 V, said battery being characterized in that a zirconium-containing compound in the form of particles having a particle diameter from 100 nm to 3 μ m adheres onto particle surfaces of said lithium cobalt oxide.

2. (currently amended) A nonaqueous electrolyte secondary battery which has a positive electrode containing lithium cobalt oxide as a positive active material, a negative electrode containing a graphite material and a nonaqueous electrolyte solution containing ethylene carbonate as a solvent and which is charged with an end-of-charge voltage of at least 4.3 V, said battery being characterized in that said positive active material is a product obtained by firing a mixture of a lithium salt, tricobalt tetraoxide (Co_3O_4) and ~~a zirconium compound~~ zirconium oxide (ZrO_2), and ~~[[the]]~~ a zirconium compound in the form of particles having a particle diameter from 100 nm to 3 μ m adheres

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adhere onto particle surfaces of said lithium cobalt oxide.

3. (original) The nonaqueous electrolyte secondary battery as recited in claim 2, characterized in that firing of said mixture is performed at a temperature of below 900 °C but not below 700 °C.

4. (previously presented) The nonaqueous electrolyte secondary battery as recited in claim 2, characterized in that a ratio in charge capacity of said negative electrode to said positive electrode (negative electrode/positive electrode) in their portions opposed to each other is in the range of 1.0 - 1.2, when said end-of-charge voltage of the battery is prescribed at 4.4 V.

5. (previously presented) The nonaqueous electrolyte secondary battery as recited in claim 2, characterized in that said solvent in the nonaqueous electrolyte solution contains 10 - 20 % by volume of ethylene carbonate.

6. (previously presented) The nonaqueous electrolyte secondary battery as recited in claim 2, characterized in that zirconium is contained in said positive active material in the amount of less than 1 mole % but not less than 0.1 mole %, based on the total mole

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of cobalt and zirconium.

7. (canceled)

8. (original) A method for manufacturing a nonaqueous electrolyte secondary battery which includes a positive electrode containing, as a positive active material, lithium cobalt oxide in the form of particles having a surface onto which a zirconium compound adheres, a negative electrode containing a graphite material and a nonaqueous electrolyte solution containing ethylene carbonate as a solvent and which is charged with an end-of-charge voltage of at least 4.3 V, characterized in that said positive active material is obtained by firing a mixture of a lithium salt, tricobalt tetraoxide (Co_3O_4) and a zirconium compound at a temperature of below 900 °C but not below 700 °C.

9. (original) The method for manufacturing a nonaqueous electrolyte secondary battery as recited in claim 8, characterized in that zirconium is contained in said positive active material in the amount of less than 1 mole % but not less than 0.1 mole %, based on the total mole of cobalt and zirconium.

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10. (previously presented) The nonaqueous electrolyte secondary battery as recited in claim 3, characterized in that a ratio in charge capacity of said negative electrode to said positive electrode (negative electrode/positive electrode) in their portions opposed to each other is in the range of 1.0 - 1.2, when said end-of-charge voltage of the battery is prescribed at 4.4 V.

11. (new) The nonaqueous electrolyte secondary battery as recited in claim 1, wherein at least 80% of the particle surface of said lithium cobalt oxide is left uncovered.

12. (new) The nonaqueous electrolyte secondary battery as recited in claim 2, wherein at least 80% of the particle surface of said lithium cobalt oxide is left uncovered.